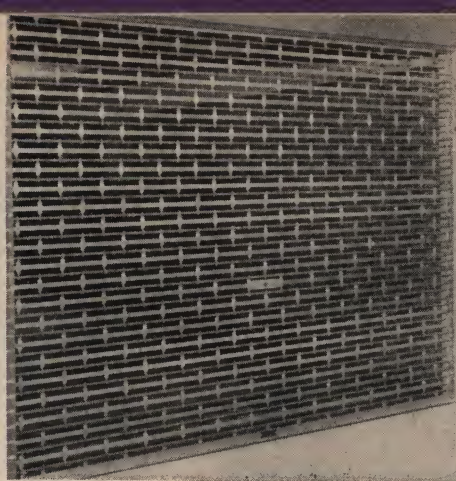


rolling counter shutter



rolling grille



rolling service door

HAZEN

® PENDING

ROLLING DOORS

steel and aluminum

rolling service doors

rolling counter shutters and grilles

underwriters' labeled rolling steel fire doors



underwriters' labeled rolling steel fire door

| | pages |
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HAZEN METAL PRODUCTS INC.

11 WEST 42ND STREET, NEW YORK 36, N.Y.
DISTRIBUTORS IN PRINCIPAL CITIES

A.L.A. FILE NO. 76-0

advantages

of HAZEN rolling doors and grilles

- All Hazen rolling doors, counter shutters and grilles are manufactured in Western Europe to our specifications, from highest grade materials, with the finest degree of workmanship.
- Every door, grille, or counter shutter is custom-designed and custom-built to meet the specific requirements of each particular opening.
- Available in heavily galvanized steel, or aluminum alloy, in various shapes and finishes of slats, to satisfy every requirement.
- May be manually operated, chain-gear, or crank-gear, or electrically operated.
- Manufactured to fit inside, outside, or between-jamb openings.
- May be fitted singly, or in multiple, with movable mullions.
- Every Hazen door, grille, or counter shutter—regardless of size—is equipped with a spring adjusting device accessible from outside the hood, as standard equipment.
- All motorized doors and grilles are equipped with emergency chain-hoist operation.
- Detailed drawings are supplied for every job, regardless of size. Wiring diagrams are supplied for electrically operated doors and grilles.
- Every Hazen door, grille, and counter shutter is individually tested for perfect balance and operation before shipment.
- All Hazen doors, grilles, and counter shutters are shipped with curtains fully assembled and ready to be erected.
- Parts and replacements for all Hazen doors, grilles, and counter shutters are easily obtainable from our New York warehouse.

guarantee

Every Hazen rolling door, grille, and counter shutter is fully guaranteed for one year after installation against any possible defect of workmanship or material.

distribution

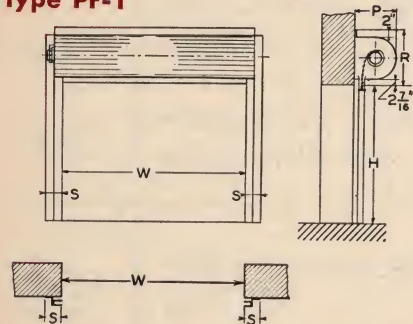
Hazen doors, grilles, and counter shutters are sold by a large network of agents and distributors throughout the United States, who offer the most efficient installation and after-sales services.

SPACE REQUIREMENTS

MANUALLY OPERATED 'push-up' type up to 80 sq. ft. in area

face mounted (inside or outside)

type PF-1



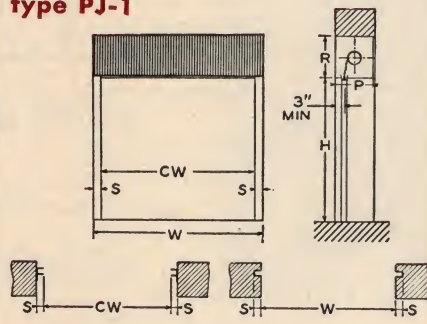
| HEIGHT up to | 8'0" | 10'0" | 12'0" | 14'0" | 16'0" |
|-----------------|--------|---------|---------|---------|---------|
| WIDTH up to | *S | R | P | R | P |
| 8'0" | 4 3/4" | 8 3/4" | 16 1/4" | 18 1/4" | 20 1/4" |
| 11'0" | 5 1/2" | 9" | | | |
| 18'0" | 6 3/4" | 9 1/2" | 11 1/4" | 13 3/4" | 15 3/4" |
| OVER 18'0" | 8 1/4" | 10 1/2" | | | |

* S (sideroom) sizes are the same for all heights

NOTE: Clearance figures above are in inches.

mounted between jambs

type PJ-1

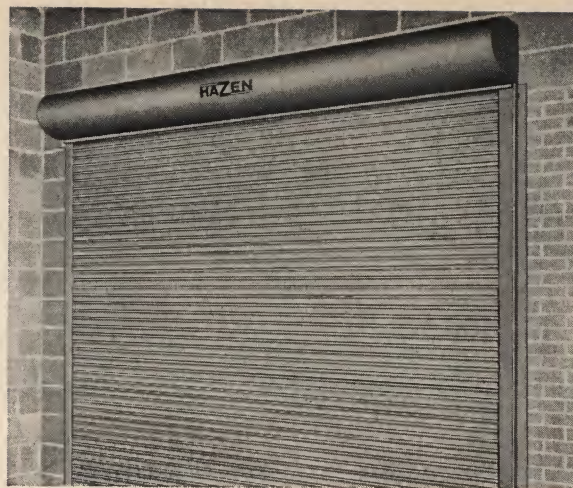


| HEIGHT up to | 8'0" | 10'0" | 12'0" | 14'0" | 16'0" |
|-----------------|--------|---------|---------|---------|---------|
| WIDTH up to | *S | R | P | R | P |
| 8'0" | 2 1/4" | | | | |
| 11'0" | 2 3/4" | 13 1/4" | 11 1/4" | 15 3/4" | 13 1/4" |
| 18'0" | 3 1/4" | | | | |
| OVER 18'0" | 4 1/4" | | | | |

* S (sideroom) sizes are the same for all heights

cw = clear width = opening width less 2S

NOTE: Clearance figures above are in inches.

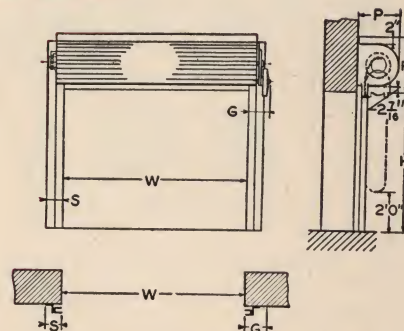


SPACE REQUIREMENTS

CHAIN-GEAR OPERATED

face mounted (inside or outside)

type CHF-2



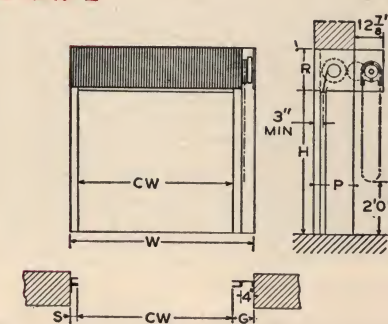
| HEIGHT up to | 8'0" | 10'0" | 12'0" | 14'0" | 16'0" |
|-----------------|--------|---------|---------|---------|---------|
| WIDTH up to | S* | G* | R | P | R |
| 8'0" | 4 3/4" | 8 3/4" | 16 1/4" | 18 1/4" | 20 1/4" |
| 11'0" | 5 1/2" | 9" | | | |
| 18'0" | 6 3/4" | 9 1/2" | 11 1/4" | 13 3/4" | 15 3/4" |
| 20'0" | 8 1/4" | 10 1/2" | | | |

* S and G sizes are the same for all heights

CHAIN-GEAR OPERATED

mounted between jambs

type CHJ-2

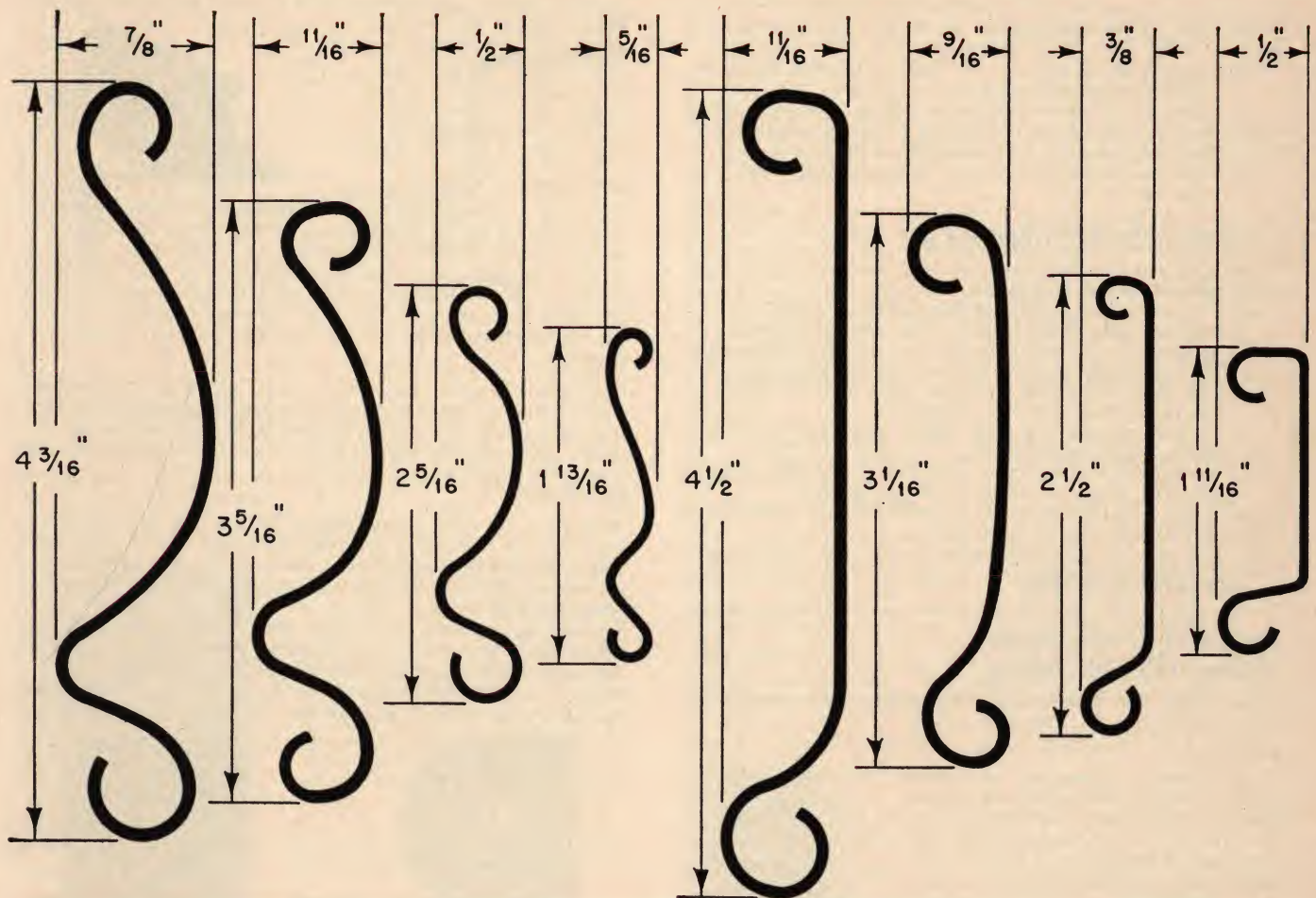


| HEIGHT up to | 8'0" | 10'0" | 12'0" | 14'0" | 16'0" |
|-----------------|--------|--------|-------|-------|---------|
| WIDTH up to | S* | G* | C* | R | P |
| 8'0" | 2 1/4" | 6 3/4" | 13" | | |
| 11'0" | 2 3/4" | 6 3/4" | 14" | 16" | 17 3/4" |
| 18'0" | 3 1/4" | 7 1/4" | 12" | 14" | 15 3/4" |
| 20'0" | 4 1/4" | 8 1/4" | | | |

* S, G and C sizes are the same for all heights.

cw = clear width = opening width less S and G

HAZEN slats—zinc-coated steel or aluminum alloy (full size)

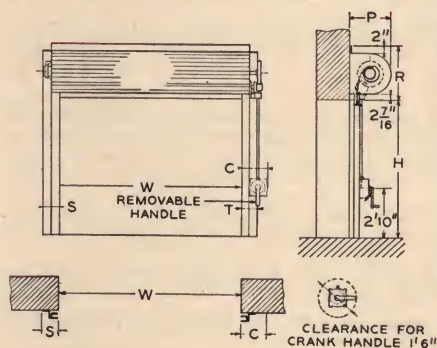


■ SPACE REQUIREMENTS

CRANK-GEAR OPERATED

face mounted (inside or outside)

type CRF-3

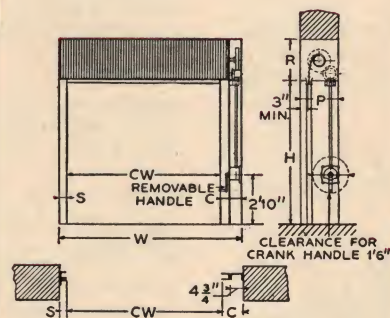


| HEIGHT up to | 8'0" | 10'0" | 12'0" | 14'0" | 16'0" |
|-----------------|--------|---------|--------|-------|-------|
| WIDTH up to | S* | C* | T* | R | P |
| 8'0" | 4 3/4" | 9" | 5 1/2" | 17" | 19" |
| 11'0" | 5 1/2" | 9 3/4" | 6 1/4" | 12" | 14" |
| 18'0" | 6 3/4" | 10" | 6 1/2" | 16" | 18" |
| 20'0" | 8 1/4" | 11 1/4" | 7 1/2" | 23" | 25" |

* S, C & T sizes are the same for all heights

mounted between jambs

type CRJ-3



| HEIGHT up to | 8'0" | 10'0" | 12'0" | 14'0" | 16'0" |
|-----------------|--------|--------|-------|-------|-------|
| WIDTH up to | S* | C* | R | P | R |
| 8'0" | 2 1/4" | 7" | 14" | 16" | 18" |
| 11'0" | 2 3/4" | 7 1/2" | 12" | 14" | 16" |
| 18'0" | 3 1/4" | 8" | 16" | 18" | 20" |
| 20'0" | 4 1/4" | 8 3/4" | 23" | 25" | |

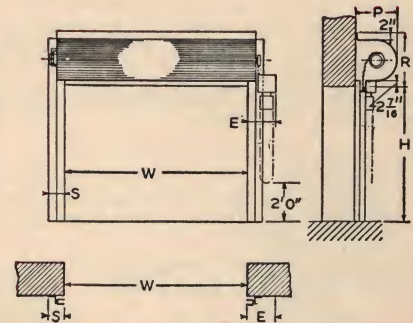
* S and C sizes are the same for all heights

cw = clear width = opening width less S and C

ELECTRICALLY OPERATED

face mounted (inside or outside)

type ELF-4



| HEIGHT up to | 8'0" | 10'0" | 12'0" | 14'0" | 16'0" |
|-----------------|--------|---------|---------|---------|---------|
| WIDTH up to | S* | E* | R | P | R |
| 8'0" | 4 3/4" | 19" | 16 1/4" | 18 1/4" | 20 1/4" |
| 11'0" | 5 1/2" | 20" | 11 1/4" | 13 1/4" | 15 1/4" |
| 18'0" | 6 3/4" | 20 1/2" | 17 3/4" | 19 3/4" | |
| 20'0" | 8 1/4" | 21" | | | |

* S and E sizes are the same for all heights.

rolling steel or aluminum service doors

METHODS OF DOOR OPERATION

Hazen rolling doors are available in the following four types of operation:

- Manual 'push-up' operation (for doors up to 80 sq. ft. in area; with lift handles on bottom rail).
- Chain-gear operation (for doors over 80 sq. ft. in area. Operated with endless hand chain acting through reduction gearing).
- Crank-gear operation (with detachable crank handle).
- Electric, motorized operation (with emergency chain hoist, push-button controls, etc.).

TYPES OF MOUNTINGS

Hazen rolling doors may be supplied:

- For inside face-of-wall mounting and inside operation, with the hood curved to fit the contour of the rolled-up curtain.
- For outside face-of-wall mounting and outside operation, with the hood curved to fit the contour of the rolled-up curtain.
- For inside face-of-wall mounting and outside operation, or vice-versa. (Through-the-wall operation.)
- For between-jamb mounting, with square hood below the ceiling, and removable panel.
- For between-jamb mounting, with square hood fully or partly concealed above the ceiling, and removable soffit.

For headroom and sideroom clearances required for the above mountings, see details and tables on pages 2 and 3.

SPECIFICATIONS

for steel or aluminum rolling service doors

Hazen rolling door specifications easily meet (and often exceed) the highest standards in the rolling door industry.

CURTAIN

To be formed of interlocking, cold rolled close annealed, heavily galvanized steel (or aluminum alloy) slats. The slats may be curved or flat in shape, as desired. See full-size details of Hazen slats on page 3.

Slats to be especially designed and rolled to resist deflection and to prevent water from entering the interlocks. They are to be made of large and deeply curved sections to normally permit the curtain to safely resist—in the case of steel doors—a wind pressure of at least 20 lb. per square foot.

The ends of each of the alternate slats are to be fitted with malleable iron endlocks which are fastened with two steel rivets for steel doors—or with aluminum-alloy endlocks fastened with aluminum rivets for aluminum rolling doors. These endlocks protect the slats from rubbing against the guides and help to hold the curtain in alignment. Photograph of slats showing endlocks appears above.

Continuous endlocks, designed to protect both ends of every slat, may be supplied upon request.

sizes of slats

Full-size details on Page 3 show the eight types of curved and flat slats in which Hazen rolling steel and aluminum doors are made. These slats vary in size from $1\frac{1}{16}$ " to $4\frac{1}{2}$ " in width and $\frac{5}{16}$ " to $\frac{7}{8}$ " in depth of crown.

recommended sizes and gauges of steel slats in relation to door surface

| surface of door | up to 150 sq. ft. | 151 to 250 sq. ft. | over 250 sq. ft. |
|-----------------|---|----------------------------------|----------------------------------|
| size of slats | $2\frac{5}{16}$ " or $3\frac{5}{16}$ " (2" or 3" on center) | $3\frac{5}{16}$ " (3" on center) | $4\frac{3}{16}$ " (4" on center) |
| gauge of slats | 22 or 20 | 20 or 18 | 20, 18 or 16 |

gauges of slats These to be as follows:

For steel doors: 22, 20, 18 or 16 U.S. gauge steel.

For aluminum doors: 20, 18 or 16 U.S. gauge aluminum, "Alloy 52 S $\frac{1}{2}$ Hard."



HAZEN deeply curved slats and malleable endlocks.

bottom rail

To consist of two angles of $1\frac{1}{16}$ "x $1\frac{1}{16}$ "x $3\frac{1}{16}$ " hot dip galvanized steel (or extruded aluminum) plates, fastened back to back and extending along the full width of the curtain.

On very wide doors, the bottom rail to consist of $2\frac{1}{2}$ "x $2\frac{1}{2}$ "x $\frac{3}{16}$ " steel (or extruded aluminum) angles. See photograph of standard double-angled bottom rail at right.

HAZEN heavy double-angled bottom rail



COUNTERBALANCE

To consist of oil-tempered helical steel springs of enough strength to counterbalance the full weight of the curtain, with a safety factor in excess of 25% over the actual weight of the curtain.

A spring adjusting device shall be applied to every door. It shall be located on the exterior side of the bracket, accessible from outside the hood and will enable the easy adjusting of springs, whenever needed, after installation, without removing the hood.

BARREL

Shall consist of a steel pipe which contains the helical counterbalancing springs. This barrel or pipe to be of sufficient thickness and diameter to insure a deflection not exceeding .03 inch per foot of door width. Each unit to be factory tested for perfect balancing and operation before shipment.

BRACKETS

Shall be of unbreakable steel plate of not less than $\frac{3}{8}$ " in thickness. They shall be attached to the guides by means of screws and bolts and to the wall by means of expansion bolts. Hood to be fastened to the brackets by means of screws and bolts, and to the wall by means of expansion bolts.

For push-up type doors, the exterior side of one bracket to carry a spring adjusting device. On chain-gear doors, one bracket carries the spring adjusting device, the other the gearing system.

Brackets to be curved for inside or outside face-of-wall mounting, and square when door is mounted between jambs. See photos below.



Curved bracket for face-of-wall mountings



Square bracket for between-jamb mountings

HOOD

Shall be formed of not less than 24 U.S. gauge sheet steel for steel doors—and not less than 22 U.S. gauge aluminum sheeting for aluminum doors.

Hood shall be curved to fit the contour of the door curtain when the door is for inside or outside face-of-wall mounting. It shall be square when the door is mounted between jambs. It shall be fastened to the brackets.

For headroom clearances on all types of mountings, see details on Pages 2 and 3.

GUIDES

Shall be formed of not less than $\frac{3}{16}$ " cold rolled steel angles for steel doors—and $\frac{3}{16}$ " extruded aluminum sections for aluminum doors.

Guides to run continuously to top of brackets to furnish them support and fastenings.

Available depths of guides: 2", $2\frac{1}{2}$ ", 3", and 4".

Guides exceeding 4" and up to 6" in depth may be supplied on very wide doors.

See table below and details on Page 5 for depths and clearances of guides in relation to widths of doors.

For sideroom clearances on all types of mountings, see details on Pages 2 and 3.

DEPTHS AND CLEARANCES IN RELATION TO DOOR WIDTHS

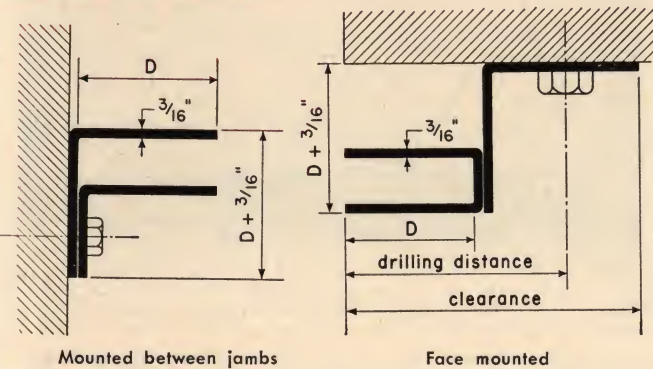
| Door width | up to 8'0" | 8'1" to 11'0" | 11'1" to 18'0" | over 18'0" |
|-------------------|------------------|------------------|------------------|------------------|
| Depth-D | 2" | $2\frac{1}{2}$ " | 3" | 4" |
| drilling distance | $3\frac{3}{8}$ " | $4\frac{1}{8}$ " | $4\frac{7}{8}$ " | $6\frac{3}{8}$ " |
| clearance | $4\frac{3}{8}$ " | $5\frac{1}{2}$ " | $6\frac{3}{8}$ " | $8\frac{1}{4}$ " |

NOTE: Opening of guide varies with size and shape of slats

(See details top of page 5)

GUIDES (con't.)

DETAILS OF GUIDES



GEARS

Shall be of unbreakable malleable iron, with teeth cast from machine cut patterns. The minimum face of any gear to be 1". Gears must withstand a 50% overload without failure or distortion.

Simple gears to be used on most doors. Compound gears to be used on very wide and heavy doors.

SPRING ADJUSTING DEVICE



HAZEN Spring Adjusting device accessible from outside the hood

This device is to be supplied on every door, regardless of size, as follows: For push-up type doors, the exterior side of one bracket to carry this device. On chain-gear doors, one bracket carries it, while the other carries the gearing system.

This device is to be accessible from outside the hood to easily adjust the spring tension whenever needed, after erection, without having to remove the hood.

This spring adjusting device to be supplied as standard equipment, at no extra charge.

See photograph at left.

WINDLOCKS

These are available for wide doors that are exposed to heavy wind pressure, at small additional cost. They prevent the curtain from leaving the guides under unusually heavy winds.

WEATHERSTRIPPING

When additional protection against wind, rain, etc. is desired, weatherstripping may be supplied at small additional cost.

It may consist of phosphor bronze strip, neoprene webbing and continuous endlocks in the guides; tubular rubber astragal along the bottom rail; or a neoprene hood baffle. Any one or all three of these may be supplied, as desired.

MULLIONS

To be used as dividing curtain guides on large doors, when desired. These mullions may be supplied either stationary, removable, or mounted on rails, at a small additional cost.

WICKET OR PASS DOORS

These may be supplied, at additional cost, when access to the building is desired without raising the main door. They are supplied with cylinder locks as standard equipment at no extra charge.

LOCKING DEVICES

The following locking devices are available on all Hazen doors:

for PUSH-UP doors

- a sliding bolt at each end of bottom rail. This bolt is supplied with provision for padlocking, at no extra charge. Padlock to be furnished by purchaser.
- or b chrome-plated cylinder lock, placed at center of curtain, to open from either side. May be supplied at small additional charge.

If the cylinder is to be masterkeyed to the building key system, it must be supplied to us to be installed on doors at the factory.

for CHAIN-GEARED doors

- a chain cleat: Also, sliding bolt at each end of bottom rail, as described for Push-up doors, above. Both as standard equipment at no extra charge.
- or b chrome-plated cylinder lock, opening from either side, as described for Push-up doors, above. Also, chain cleat.

for CRANK-OPERATED doors

sliding lock mounted on crank box, at no extra charge.

for ELECTRICALLY OPERATED doors

push-button station, as standard equipment at no extra charge. May be supplied 'Weatherproof,' or 'Weatherproof and Keyed' at small additional cost.

FINISH

for STEEL doors: The curtain, bottom rail, and hood shall be in heavily hot dip galvanized steel with a MINIMUM (usually exceeded) of 1.25 ozs. of pure zinc coating per sq. ft. of flat metal, as per ASTM Standards. A heavy coat of phosphate bond and a shop coat of metallic paint may be applied over this galvanization, if desired, at no extra cost. All other parts of the door to be given one shop coat of metallic paint before shipment.

for ALUMINUM doors: The curtain, bottom rail, hood, and guides shall be:

- a in aluminum, MILL FINISH.
 - or b in aluminum, with ALUMILITED SATIN FINISH.
- All others parts of the door to be given one shop coat of aluminum paint before shipment.

ELECTRIC OPERATORS

Shall consist of motor, reduction gears, solenoid brake, limit switches, motor controls, push-button station, and emergency chain-hoist operator. See photographs of operators below.

motor shall be of high torque rating, NEMA type heavy duty, instantly reversible, with sealed ball bearings lubricated for life.

reduction gears The motor shall be directly coupled to gear reduction unit, with motor shaft sleeved to steel worm shaft turning bronze worm gear running in oil. Gears also to act as positive lock, in addition to brake.

electric solenoid brake Includes continuously rated operating coil, and double brake shoes.

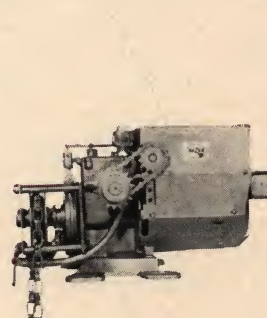
limit switches Shall be a rotary type limit switch with worm and worm gear driven by timing chain. Cams on worm gear operate micro type switches allowing vernier adjustment.

motor controls Shall be heavy duty type reversing contactors with both mechanical and electrical interlock. The motor circuit shall be protected with one thermal overload on single phase and two on three phase current.

button control One 3-button control station marked 'Open,' 'Close,' and 'Stop' furnished with each operator, as standard equipment. Additional control stations available, either standard or weatherproof, or weatherproof and keyed, at small extra cost.

emergency chain-hoist operator Provided as standard equipment with each operator and allows hand operation of door in event of power failure. When hand hoist is engaged, electric power, as well as solenoid brake, are automatically disconnected from driving mechanism.

automatic safety device This is attached through the rubber astragal along the bottom rail. It is a safety device which will automatically reverse the direction of the door should it meet an obstruction. It is an optional feature, available at small additional cost.



Standard electric operator

1/3 to 3/4 Hp. Weight: 90 lbs.
H: 18 1/4", W: 12 3/4", D: 10 1/4"



Heavy-duty electric operator

1 Hp to 4 Hp. Weight: 105 lbs.
H: 28 1/2", W: 15 1/4", D: 14 1/2"

rolling counter shutters—extruded aluminum or galvanized steel

ADVANTAGES

Hazen aluminum (or galvanized steel) Rolling Counter Shutters—made of midget flat slats—present a trim and pleasant appearance for small openings requiring good protection with a minimum space for operation. They are recommended for use in cafeterias, schools, hospitals, libraries, banks, service counters, concession booths of all types, news-stands, ticket windows, bars, etc.

Just as with the Hazen rolling service doors and grilles, Hazen rolling counter shutters are custom-designed and custom-built to specified openings with the highest degree of workmanship and accuracy to assure perfect and easy operation. They are available in extruded aluminum alloy and in heavily galvanized steel.

METHODS OF SHUTTER OPERATION

Hazen extruded aluminum (or galvanized steel) rolling counter shutters are available in the following two types of operation.

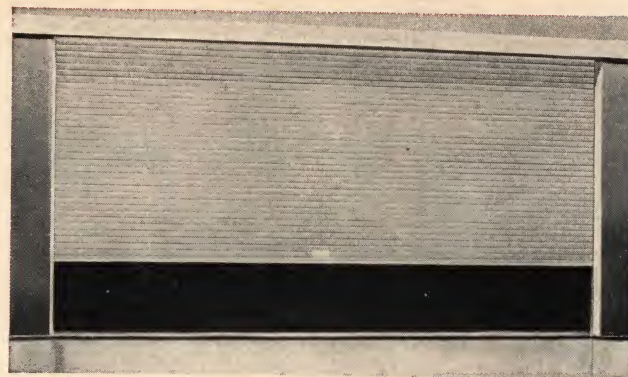
- Manual 'push-up' operation (with handles mounted on bottom rail).
- Crank-gear operation (with detachable crank handle).

TYPES OF MOUNTINGS

Hazen aluminum (or steel) rolling counter shutters may be supplied:

- for inside face-of-wall mounting and inside operation, with the hood curved to fit the contour of the rolled-up curtain.
- for outside face-of-wall mounting, and outside operation, with the hood curved to fit the contour of the rolled-up curtain.
- for inside face-of-wall mounting and outside operation, or vice versa.
- for between-jamb mounting, with square hood concealed above the ceiling, and removable soffit.
- for between-jamb mounting, with square hood below the ceiling, and removable panel.

For headroom and sideroom clearances required for the above mountings, see details and tables below and on Page 7.



Typical installation of HAZEN extruded aluminum rolling counter shutter



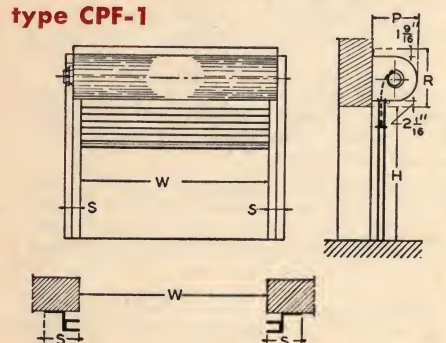
HAZEN 18 gauge extruded aluminum midget flat slats for rolling counter shutters coupling smart appearance with sturdiness

SPACE REQUIREMENTS

MANUALLY OPERATED 'push-up' type

face mounted (inside or outside)

type CPF-1

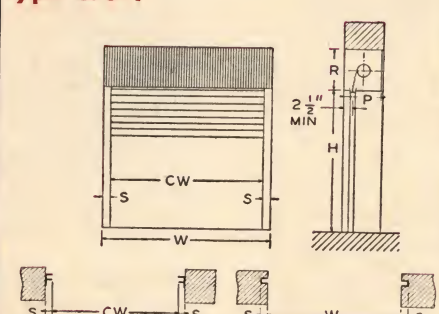


| HEIGHT up to | 3'0" | 4'0" | 6'0" | 8'0" |
|--------------|--------|---------|---------|---------|
| WIDTH up to | S* R P | R P R P | R P R P | R P |
| 6'0" | 2 3/4" | 12 1/2" | 12 1/2" | 13 3/8" |
| 8'0" | 3 3/4" | 8 3/8" | 8 3/8" | 10" |
| 12'0" | 3 3/4" | | | 11" |

*S (sideroom) sizes are the same for all heights.

mounted between jambs

type CPJ-1



| HEIGHT up to | 3'0" | 4'0" | 6'0" | 8'0" |
|--------------|--------|---------|---------|---------|
| WIDTH up to | S* R P | R P R P | R P R P | R P |
| 6'0" | 1 1/4" | 10 3/8" | 10 3/8" | 11 1/4" |
| 8'0" | 1 1/4" | 8 3/8" | 8 3/8" | 10" |
| 12'0" | 2 1/4" | | | 11" |

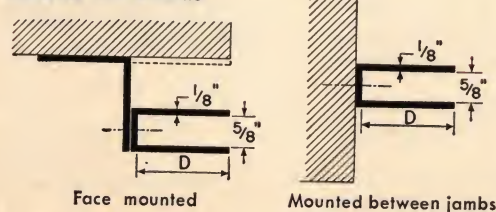
*S (sideroom) sizes are the same for all heights.

cw = clear width = opening width less 2 S

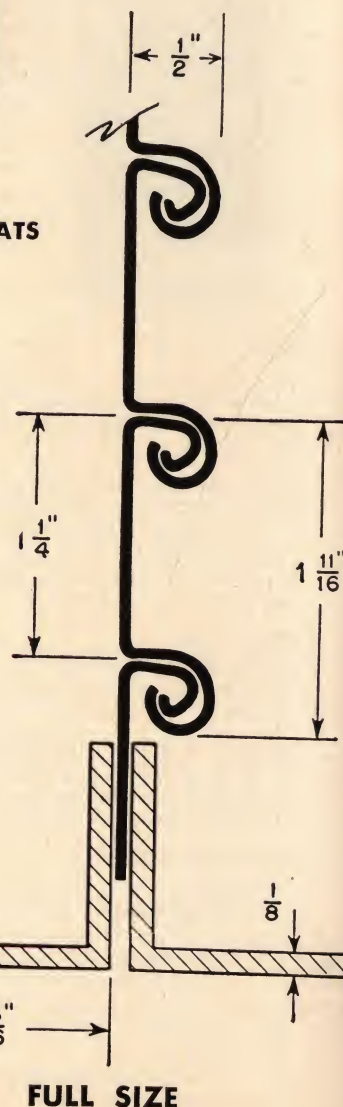
DEPTH OF GUIDE IN RELATION TO WIDTH OF SHUTTER

| width of shutter | depth of guide-D |
|------------------|------------------|
| up to 6'0" | 1" |
| 6'1" to 8'0" | 1 1/2" |
| 8'1" to 12'0" | 2" |
| over 12'0" | 2 1/2" |

DETAILS OF GUIDES



DETAIL OF SLATS



FULL SIZE

SPECIFICATIONS

for extruded aluminum or steel rolling counter shutters

CURTAIN

For aluminum rolling counter shutters, the curtain shall be formed of high duty extruded aluminum "Alloy 6063" flat slats $1\frac{1}{16}" \times .05"$ (equivalent to 18 gauge), with a depth of crown of $\frac{1}{2}"$. These flat slats shall be highly resistant to corrosion and shall be extruded under pressure to accurate and identical profile.

For steel rolling counter shutters, the curtain shall be formed of 24 gauge heavily galvanized steel flat slats $1\frac{1}{16}"$ wide, with a depth of crown of $\frac{1}{2}"$.

These slats shall interlock securely and present a flat surface $1\frac{1}{4}"$ wide, with invisible horizontal shoulders to assist in raising the curtain. See full-size details and photograph of these slats on Page 6.

Alternate slats shall have riveted flat aluminum endlocks fastened with aluminum rivets for aluminum shutters; and riveted, heavily galvanized flat steel endlocks fastened with steel rivets for steel shutters.

These endlocks protect the slats from rubbing against the guides and help to hold the curtain in alignment.

BOTTOM RAIL

To consist of two angles of extruded aluminum "Alloy 6063" (or heavily galvanized steel) $1\frac{3}{16}" \times 1\frac{3}{16}" \times \frac{1}{8}"$, fastened back to back and extending the full width of the opening. See full size detail Page 6.

GUIDES

Shall be formed of extruded aluminum "Alloy 6063" (or steel) shapes of not less than $\frac{1}{8}"$ in thickness and shall run continuously to top of brackets to furnish them support and fastenings.

For depths of guides in relation to widths of openings, and for side-room clearances for all types of mountings and operation, see details on Pages 6 and 7.

HOOD

Shall be formed of not less than 22 gauge aluminum sheeting "Alloy 52 S $\frac{1}{2}$ Hard" for aluminum counter shutters, and not less than 24 gauge heavily galvanized steel sheeting for steel shutters.

Hood shall be curved to fit the contour of the curtain coil when the counter shutter is for inside or outside face-of-wall mounting. It shall be square when the counter shutter is mounted between jambs, in which case it can be fastened under or above the ceiling, as required.

For headroom clearances for all types of mountings, see Pages 6 and 7.

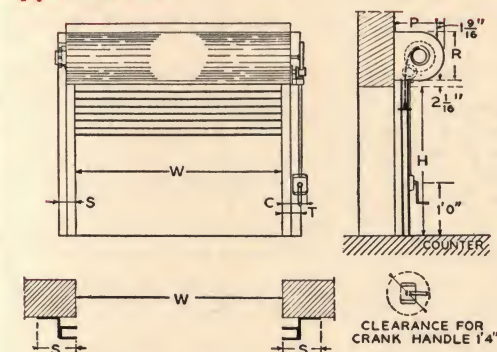
BRACKETS

Shall be of unbreakable steel plate of not less than $\frac{1}{4}"$ in thickness. The hood shall be attached to the brackets. They shall be fastened to the guides and to the wall.

SPACE REQUIREMENTS

CRANK GEAR OPERATED

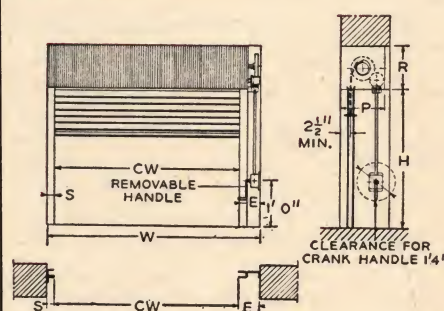
face mounted (inside or outside)
type CCRF-3



| HEIGHT up to | 3'0" | 4'0" | 6'0" | 8'0" |
|-----------------|---|-------------------------------|-------------------------------|-------------------------|
| WIDTH up to | S* C* T R P T R P T R P T R P | S* C* T R P T R P T R P T R P | S* C* T R P T R P T R P T R P | S* C* T R P T R P T R P |
| 6'0" | 2 1/4" 4 1/4" 2 1/4" 12 1/2" 2 1/4" 12 1/2" 2 1/4" 13 3/4" 2 1/4" 14 1/4" | | | |
| 8'0" | 3 3/4" 4 3/4" 3 3/4" 8 3/4" 3 3/4" 8 3/4" 3 3/4" 10 3/4" 3 3/4" 11" | | | |
| 12'0" | 3 3/4" 5 3/4" 3 3/4" 3 3/4" 3 3/4" 3 3/4" 3 3/4" 10 3/4" 3 3/4" 11" | | | |

* S and C sizes are the same for all heights.

mounted between jambs
type CCRJ-3



| HEIGHTS up to | 3'0" | 4'0" | 6'0" | 8'0" |
|------------------|---|-----------------------|-----------------------|-----------------------|
| WIDTH up to | S* E* R P R P R P R P | S* E* R P R P R P R P | S* E* R P R P R P R P | S* E* R P R P R P R P |
| 6'0" | 1 1/4" 4 1/4" 10 1/4" 10 1/4" 11 1/4" 12 1/4" | | | |
| 8'0" | 1 1/4" 4 1/4" 8 3/4" 8 3/4" 10 3/4" 11" | | | |
| 12'0" | 2 1/4" 5 1/4" 8 3/4" 8 3/4" 10 3/4" 11" | | | |

* S and E sizes are the same for all heights.

cw = clear width = opening width less S and E

COUNTERBALANCE

To consist of oil-tempered helical steel springs of enough strength to counterbalance the full weight of the shutter's curtain, with a safety factor in excess of 25% over the actual weight of the curtain.

BARREL

To consist of a steel pipe which contains the helical counterbalancing springs. This steel pipe shall be of sufficient thickness and diameter to insure a deflection not exceeding .03 inch per foot of shutter width.

Each unit shall be factory tested for perfect balancing and operation.

SPRING ADJUSTING DEVICE

Supplied on every counter shutter—regardless of size—as follows: For face mounted shutters, on the exterior side of one bracket. For shutters mounted between jambs, on the interior side of a bracket, accessible through a removable soffit, or removable panel.

WEATHERSTRIPPING

This may consist of phosphor bronze strip, neoprene webbing and continuous endlocks in the guides; tubular rubber astragal along the bottom rail to prevent abrasions on counter or sill; or a neoprene hood baffle. Any one or all three of these may be supplied, at a small additional charge.

WOOL FELT PILE

The inside of each guide may be felted with wool pile, which acts as a shock absorber and noise silencer. This felt may be supplied at a small additional cost.

MULLIONS

Used as dividing curtain guides on wide shutters, when required, at additional cost. Mullions may be either stationary or removable, as desired.

HANDLES

These shall be made of extruded aluminum for aluminum counter shutters, and of chrome-plated steel for steel shutters, mounted on the bottom rail. There shall be at least two such handles per shutter.

LOCKING DEVICES

The following are available on all Hazen rolling counter shutters:
for **MANUAL PUSH-UP** shutters

a Aluminum sliding bolt on aluminum shutters (or steel sliding bolt on steel shutters) at each end of bottom rail. These bolts are supplied with provision for padlocking as standard equipment.

or b chrome-plated cylinder lock, placed at center of curtain, to open from either side. Supplied at small additional charge.

If cylinder to be masterkeyed to building key system, it must be supplied to us to be installed on shutters at factory.

for **CRANK-OPERATED** shutters

sliding lock mounted on crank box, at no extra charge.

FINISH

for extruded **ALUMINUM** counter shutters, the curtain, bottom rail, guides, and hood shall be:

a in aluminum, MILL FINISH.

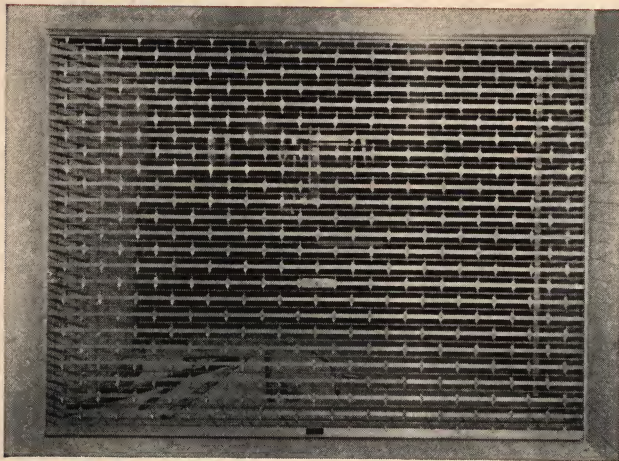
or b in aluminum, ALUMILITED SATIN FINISH.

All other parts of the shutter to be given one coat of aluminum paint.

for **STEEL** counter shutters, curtain, bottom rail, and hood shall be in heavily hot dip galvanized steel with a MINIMUM (usually exceeded) of 1.25 ozs. of pure zinc coating per sq. ft. of flat metal, as per ASTM Standards. A heavy coat of phosphate bond and a shop coat of metallic paint may be applied over this galvanization, if desired, at no extra cost.

All other parts of the shutter to be given one shop coat of aluminum paint.

rolling grilles—extruded aluminum or galvanized steel



Typical HAZEN grille installation used in schools, showing cylinder lock in center of grille.

ADVANTAGES

Hazen aluminum or steel rolling grilles, which operate like the Hazen rolling doors, are custom-designed and custom-built with the highest degree of workmanship and accuracy to assure perfect and easy operation. They provide good protection as well as a decorative effect, without interfering with ventilation, light, or vision. They are available both in extruded aluminum "Alloy 6063" and in heavily galvanized steel.

Hazen grilles are used as corridor divisions in schools; as protection with vision for store fronts; as protection with ventilation, light and vision in banks, storerooms, produce markets, bars, etc., as well as in many other cases where these conditions are required.

METHODS OF GRILLE OPERATION

Hazen rolling grilles are available in four types of operation:

- a Manual 'push-up' operation (for grilles up to 120 ft. in area).
- b Chain-hoist operation (operated with endless hand chain acting through reduction gearing).
- c Crank-gear operation (with detachable crank handle).
- d Electric, motorized operation (with emergency chain hoist, push-button controls, etc.)

TYPES OF GRILLE MOUNTINGS

Hazen rolling grilles may be supplied:

- a for inside face-of-wall mounting and inside operation, with the hood curved to fit the contour of the rolled-up curtain.
- b for outside face-of-wall mounting and outside operation, with the hood curved to fit the contour of the rolled-up curtain.
- c for inside face-of-wall mounting and outside operation, or vice-versa. (Through-the-wall operation.)
- d for between-jamb mounting, with square hood fully or partly concealed above the ceiling, and removable soffit.
- e for between-jamb mounting, with square hood below the ceiling, and removable panel.

For headroom and sideroom clearances required for the above mountings, see details and tables on Page 9.

SPECIFICATIONS

for aluminum or steel rolling grilles

CURTAIN

Shall be formed of $\frac{3}{8}$ " round extruded aluminum "Alloy 6063" (or galvanized steel) bars alternating horizontally through the entire width of the opening with $\frac{3}{4}$ " x $\frac{1}{8}$ " extruded aluminum (or steel) flat bars. Both the round and flat bars end into the guides and are held to-

gether with HAZEN specially designed and unbreakable, self-greasing and noiseless rolling plastic endlinks. The round bars shall pass through the ends of extruded aluminum (or galvanized steel) flat vertical links $\frac{3}{4}$ " x $\frac{1}{8}$ ". These vertical links to be riveted to the flat bars at intervals not exceeding 8" on the same bar, and 4" in projection.

The space between the horizontal round and flat bars shall not exceed $1\frac{1}{16}$ ", thus making it impossible for any object with $1\frac{1}{4}$ " diameter to go through the grille curtain.

bottom rail Shall consist of two angles $1\frac{1}{16}$ " x $1\frac{1}{16}$ " x $\frac{3}{16}$ " extruded aluminum "Alloy 6063" (or heavily galvanized steel), fastened back to back and extending along the full width of the grille curtain. See photograph on Page 4.

COUNTERBALANCE

To consist of oil-tempered helical steel springs of enough strength to counterbalance the full weight of the grille curtain, with a safety factor in excess of 25% over the actual weight of the curtain.

BARREL

Shall consist of a steel pipe containing the helical springs. This barrel or pipe to be of sufficient thickness and diameter to insure a deflection not exceeding .03 inch per foot of grille width. Each unit to be factory-tested for perfect balancing and operation before shipment.

BRACKETS

To be of unbreakable steel plate, from $\frac{1}{4}$ " to $\frac{3}{8}$ " thick, attached to the guides and to the wall. Hood to be fastened to the brackets.

HOOD

Shall be of aluminum sheeting not less than 22 gauge aluminum "Alloy 52 S $\frac{1}{2}$ Hard" for aluminum grilles, and not less than 24 gauge galvanized sheeting for steel grilles.

Hood shall be curved to fit the contour of the grille curtain when inside or outside face-mounted. It shall be square when mounted between jambs, placed under or concealed above the ceiling, with a removable soffit, or removable panel.

For headroom clearances, see details and tables on Page 9.

GUIDES

Shall be formed of not less than $\frac{1}{8}$ " extruded aluminum "Alloy 6063" sections for aluminum grilles, and not less than $\frac{1}{8}$ " steel angles for steel grilles. Guides to run continuously to top of brackets to furnish them support and fastenings.

The openings of the guides shall be constructed with a safety groove to prevent the endlinks and grille curtain from leaving the guides. See photograph at right.

Depth of guides: 2" and 3".

For sideroom clearances, see details and tables on Page 9.



SPRING ADJUSTING DEVICE

A spring adjusting device shall be applied on every grille. On face mounted grilles, this device shall be mounted on the exterior side of one bracket. On grilles mounted between jambs, it is to be applied on the interior side of one bracket, accessible through a removable panel or removable soffit.

This device will enable the easy adjusting of springs, whenever needed, after erection, without removing the hood. It shall be supplied as standard equipment.

LOCKING DEVICE

A chrome-plated cylinder lock, opening from either side of the grille, may be provided at small additional cost. It shall be placed at the center of the curtain, at the proper height.

This chrome-plated cylinder lock may be supplied singly, or keyed alike. If cylinder is to be masterkeyed to building key system it must be supplied to us to install on grille lock at the factory.

FINISH

for ALUMINUM grilles: The curtain, bottom rail, hood, and guides shall be:

- a in ALUMINUM, MILL FINISH.
 - or b in ALUMINUM, with ALUMILITED SATIN FINISH.
- All other parts of the grille to be given one coat of aluminum paint.

for STEEL grilles: The curtain, bottom rail, and hood shall be in hot dip galvanized steel with a MINIMUM of 1.25 ozs. of pure zinc coating per sq. ft. of flat metal, as per ASTM Standards.

A shop coat of aluminum paint may be applied over this heavy galvanization, if desired, at no extra cost.

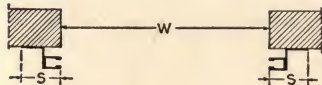
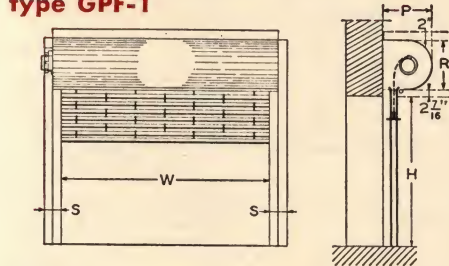
All other parts of the grille to be given one coat of aluminum paint.

rolling grilles extruded aluminum or galvanized steel

SPACE REQUIREMENTS

MANUALLY OPERATED

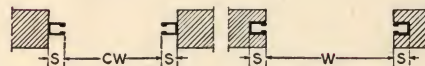
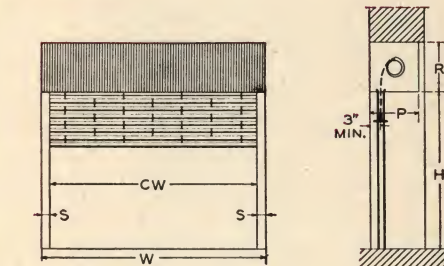
'push-up' type up to 80 sq. ft. in area
face mounted (inside or outside)
type GPF-1



| HEIGHT up to | 5'0" | | 9'0" | | 14'0" | |
|-----------------|--------|----------|---------|----------|-------|----------|
| WIDTH up to | S* | R | P | R | P | P |
| 8'0" | | 18 1/16" | | 20 1/16" | | 22 1/16" |
| 11'0" | 5 1/8" | | | | | |
| 18'0" | | | 13 3/4" | 15 3/4" | | 17 3/4" |
| 20'0" | | | | | | |

*S (sideroom) size is the same for all heights.

mounted between jambs
type GPJ-1



| HEIGHT up to | 5'0" | | 9'0" | | 14'0" | |
|-----------------|---------|----------|---------|----------|-------|----------|
| WIDTH up to | S* | R | P | R | P | P |
| 8'0" | | 15 5/16" | | 17 5/16" | | 19 5/16" |
| 11'0" | 2 3/16" | | | | | |
| 18'0" | | | 13 3/4" | 15 3/4" | | 17 3/4" |
| 20'0" | | | | | | |

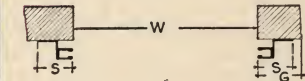
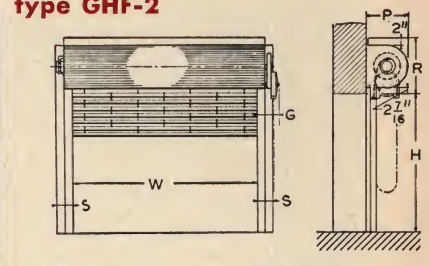
*S (sideroom) size is the same for all heights.

cw = clear width = opening width less 2 S

CHAIN-GEAR OPERATED

face mounted (inside or outside)

type GHF-2



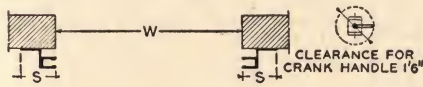
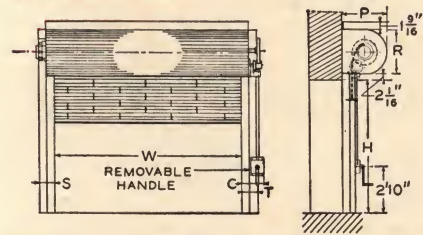
| HEIGHT up to | 5'0" | | 9'0" | | 14'0" | |
|-----------------|--------|--------|---------|---------|---------|---|
| WIDTH up to | S* | G* | R | P | R | P |
| 8'0" | 5 1/4" | | | | | |
| 11'0" | | 8 1/2" | | | | |
| 18'0" | | | 18 1/4" | 20 1/4" | 22 1/4" | |
| 20'0" | | | 13 3/4" | 15 3/4" | 17 3/4" | |

*S and G sizes are the same for all heights.

CRANK-GEAR OPERATED

face mounted (inside or outside)

type GCRF-3



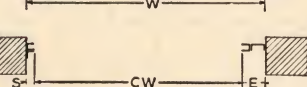
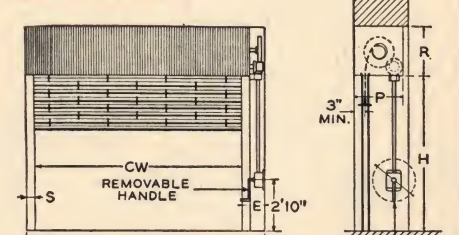
| HEIGHT up to | 5'0" | | 9'0" | | 14'0" | |
|-----------------|--------|--------|--------|---------|---------|---------|
| WIDTH up to | *S | *C | *T | R | P | P |
| 8'0" | 5 1/4" | | | | | |
| 11'0" | | 8 1/4" | | | | |
| 18'0" | | | 6 3/4" | 18 1/4" | 20 1/4" | 22 1/4" |
| 20'0" | | | | 13 3/4" | 15 3/4" | 17 3/4" |

*S, C and T sizes are the same for all heights.

CRANK-GEAR OPERATED

mounted between jambs

type GCRJ-3



| HEIGHT up to | 5'0" | | 9'0" | | 14'0" | |
|-----------------|--------|--------|---------|---------|---------|---|
| WIDTH up to | *S | *C | R | P | R | P |
| 8'0" | 2 1/4" | | | | | |
| 11'0" | | 5 1/4" | | | | |
| 18'0" | | | 15 5/8" | 17 5/8" | 19 5/8" | |
| 20'0" | | | 13 3/4" | 15 3/4" | 17 3/4" | |

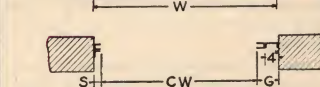
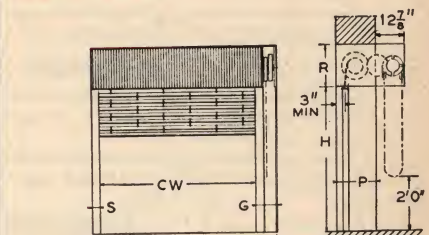
*S and C sizes are the same for all heights.

cw = clear width = opening width less S and E

CHAIN-GEAR OPERATED

mounted between jambs

type GHJ-2



| HEIGHT up to | 5'0" | | 9'0" | | 14'0" | |
|-----------------|--------|--------|---------|---------|---------|---|
| WIDTH up to | S* | G* | R | P | R | P |
| 8'0" | 2 1/4" | | | | | |
| 11'0" | | 6 1/4" | | | | |
| 18'0" | | | 15 5/8" | 17 5/8" | 19 5/8" | |
| 20'0" | | | 13 3/4" | 15 3/4" | 17 3/4" | |

*S and G sizes are the same for all heights.

cw = clear width = opening width less S and G

a few users of HAZEN rolling doors, grilles and counter shutters

City of Abilene, Texas
Air Products, Inc.
A & P Super Markets
American Federation of Labor
American Meter Co.
Aruba Caribbean Hotel, Aruba, N. I.
Burlington Industries, Inc.
Burdines, Fort Lauderdale, Fla.
Carborundum Co.
Central National Bank, Jacksonville
Connecticut Turnpike
Ellis Auditorium, Memphis
First National Bank, Miami, Fla.

First National Bank, Frederick, Okla.
Florida Power & Light Co.
General Electrodynamics, Inc.
Gimbels, New York
W. T. Grant Company
Gulf States Paper Corporation
Alexander Hamilton Airport, V. I.
Int. Business Machines
Jackson Memorial Laboratories, Me.
Jacksonville Coliseum, Jacksonville, Fla.
Kraft Foods
Mallinckrodt Chemical Co.
Miami Exhibition Hall, Miami, Fla.

Mobile County Courthouse, Mobile, Ala.
Montego Bay Airport, Kingston, Jamaica
J. C. Murphy Company
National Carbon Co.
National Guard Armories
Northside Shopping Center, Miami, Fla.
Potomac Light & Power Co.
Quakertown Brick & Tile Co.
Raytheon Mfg. Co.
Reynolds Metal Company
Safeway Stores
Sandura Company, Fullertown, Pa.
Sears Roebuck & Co.

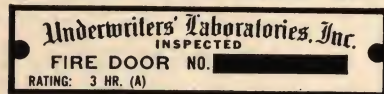
St. Paul Municipal Stadium, Minn.
Union Carbide Caribe Inc., P. R.
U. S. Air Force Bases
U. S. Naval Stations
U. S. Marine Corps
Va. Electric & Power Co.
West Hollywood Shopping Center, Fla.
F. W. Woolworth Co.
Y. M. C. A.
and a very large number of other important industrial and commercial firms, colleges, universities, schools, hospitals and churches throughout the U.S.A.

HAZEN underwriters labeled rolling steel fire doors

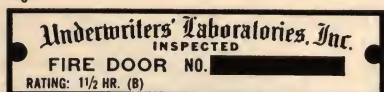


underwriters' labeled crank-gear rolling steel fire door

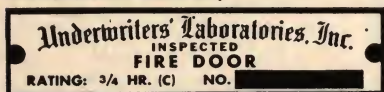
For full fire protection and 100% rating, the Underwriters' Laboratories, Inc., apply the following labels on HAZEN rolling steel fire doors not exceeding 120 sq. ft. in area, with the width or height not to exceed 12'-0". For doors exceeding 120 sq. ft. in area see Page 11 on "OVERSIZE" doors.



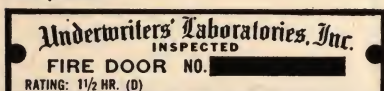
3-hour Class "A" label on doors for firewall openings.



1 1/2-hour Class "B" label on doors for vertical shaft openings (elevator shafts, etc.)

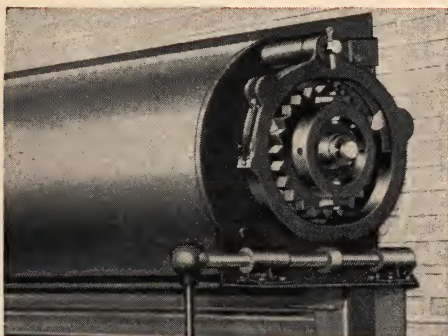


3/4-hour Class "C" label on doors for corridors and room partitions.

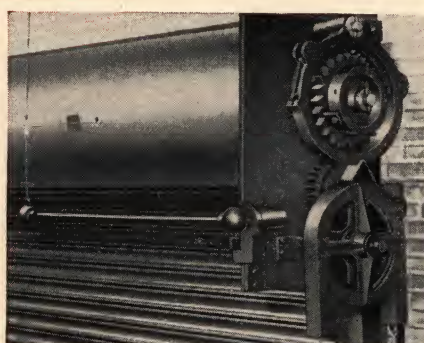


1 1/2-hour Class "D" label on doors for exterior wall openings.

METHODS OF DOOR OPERATION



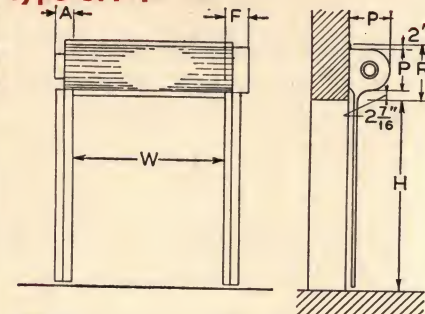
manual "push-up" operation with release lever down.



chain-gear operation with galvanized hand chain, showing release lever and fusible link in place.

SPACE REQUIREMENTS for

MANUALLY OPERATED
'push-up' type
face mounted (inside or outside)
type UPF-1

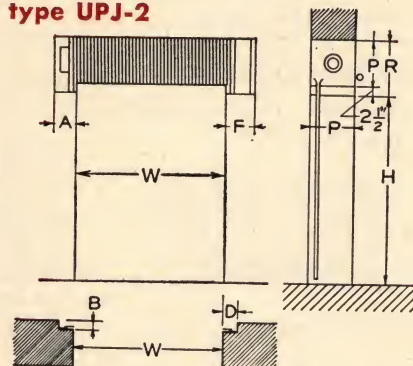


| HEIGHT up to | 8'0" | | | | | 10'0" | | | | | 12'0" | | | | |
|-----------------|------|----|---|---|---|-------|----|---|---|---|-------|----|---|---|---|
| WIDTH up to | R | P | A | F | S | R | P | A | F | S | R | P | A | F | S |
| 6'0" | | | | | | | | | | | | | | | |
| 7'0" | | | | | | | | | | | | | | | |
| 8'0" | 10 | 14 | 6 | 9 | 5 | 19 | 15 | 6 | 9 | 5 | 20 | 16 | 6 | 9 | 5 |
| 9'0" | | | | | | | | | | | | | | | |
| 10'0" | | | | | | | | | | | | | | | |
| 11'0" | 18 | 14 | 7 | 9 | 6 | 19 | 15 | 7 | 9 | 6 | 20 | 16 | 7 | 9 | 6 |
| 12'0" | | | | | | | | | | | | | | | |

NOTE: Clearance figures above are in inches.

SPACE REQUIREMENTS for between jamb mountings

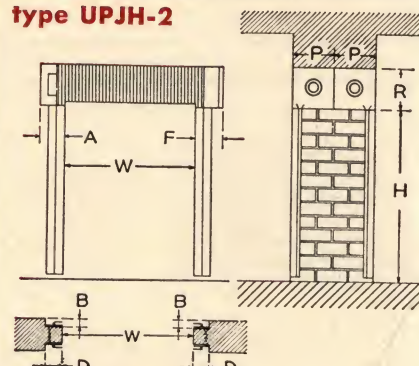
'PUSH-UP' TYPE (self-coiling)
mounted between jambs
type UPJ-2



| HEIGHT up to | 8'0" | | | | | 10'0" | | | | | 12'0" | | | | | | | |
|-----------------|------|----|---|----|---|-------|----|----|---|----|-------|---|----|----|---|----|---|---|
| WIDTH up to | R | P | A | F | D | R | P | A | F | D | R | P | A | F | D | | | |
| 6'0" | | | | | | | | | | | | | | | | | | |
| 7'0" | | | | | | | | | | | | | | | | | | |
| 8'0" | 16 | 14 | 7 | 10 | 4 | 3 | 17 | 15 | 7 | 10 | 4 | 3 | 18 | 16 | 7 | 10 | 4 | 3 |
| 9'0" | | | | | | | | | | | | | | | | | | |
| 10'0" | | | | | | | | | | | | | | | | | | |
| 11'0" | 16 | 14 | 8 | 10 | 5 | 3 | 17 | 15 | 8 | 10 | 5 | 3 | 18 | 16 | 8 | 10 | 5 | 3 |
| 12'0" | | | | | | | | | | | | | | | | | | |

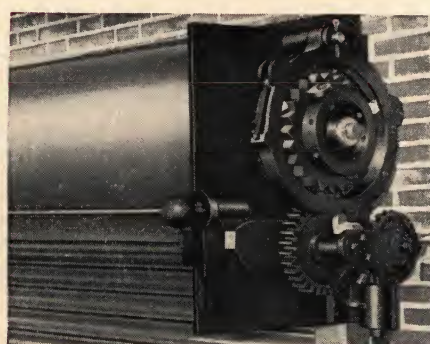
NOTE: Clearance figures above are in inches.

'PUSH-UP' TYPE (self-coiling)
mounted between jambs (horizontal)
type UPJH-2



| HEIGHT up to | 8'0" | | | | | 10'0" | | | | | 12'0" | | | | | | | |
|-----------------|------|----|---|----|---|-------|----|----|---|----|-------|---|----|----|---|----|---|---|
| WIDTH up to | R | P | A | F | D | R | P | A | F | D | R | P | A | F | D | | | |
| 6'0" | | | | | | | | | | | | | | | | | | |
| 7'0" | | | | | | | | | | | | | | | | | | |
| 8'0" | 16 | 14 | 7 | 10 | 4 | 3 | 17 | 15 | 7 | 10 | 4 | 3 | 18 | 16 | 7 | 10 | 4 | 3 |
| 9'0" | | | | | | | | | | | | | | | | | | |
| 10'0" | | | | | | | | | | | | | | | | | | |
| 11'0" | 16 | 14 | 8 | 10 | 5 | 3 | 17 | 15 | 8 | 10 | 5 | 3 | 18 | 16 | 8 | 10 | 5 | 3 |
| 12'0" | | | | | | | | | | | | | | | | | | |

NOTE: Clearance figures above are in inches.



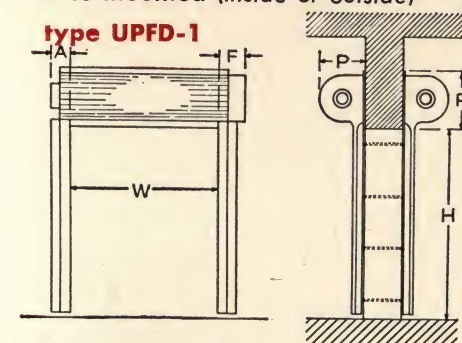
crank-gear operation with removable crank handle.

face mountings

rolling steel fire doors underwriters labeled

MANUALLY OPERATED 'push-up' type face mounted (inside or outside)

type UPFD-1



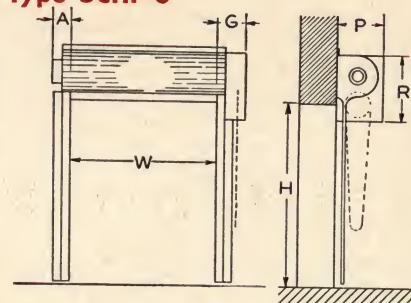
| HEIGHT up to | 8'0" | | | | | 10'0" | | | | | 12'0" | | | | |
|-----------------|------|----|---|---|---|-------|----|---|---|---|-------|----|---|---|---|
| WIDTH up to | R | P | A | F | S | R | P | A | F | S | R | P | A | F | S |
| 6'0" | | | | | | | | | | | | | | | |
| 7'0" | | | | | | | | | | | | | | | |
| 8'0" | 18 | 14 | 6 | 9 | 5 | 19 | 15 | 6 | 9 | 5 | 20 | 16 | 6 | 9 | 5 |
| 9'0" | | | | | | | | | | | | | | | |
| 10'0" | | | | | | | | | | | | | | | |
| 11'0" | 18 | 14 | 7 | 9 | 6 | 19 | 15 | 7 | 9 | 6 | 20 | 16 | 7 | 9 | 6 |
| 12'0" | | | | | | | | | | | | | | | |

NOTE: Clearance figures above are in inches.

NOTE: Clearance figures above are in inches.

CHAIN-GEAR OPERATED face mounted (inside or outside)

type UCHF-3



The diagram illustrates two rectangular objects, possibly representing structural elements or components. A horizontal dimension line labeled 'W' spans the distance between the right side of the first rectangle and the left side of the second rectangle. Below each rectangle, a vertical dimension line labeled 'S' indicates the height of the object. The rectangles are shaded with diagonal lines.

| HEIGHT up to | 8'0" | | | | | 10'0" | | | | | 12'0" | | | | |
|-----------------|------|---|---|---|---|-------|---|---|---|---|-------|---|---|---|---|
| WIDTH up to | R | P | A | G | S | R | P | A | G | S | R | P | A | G | S |

| | | | | | | | | | | | | | | | |
|-------|----|----|---|----|---|----|----|---|----|---|----|----|---|----|---|
| 6'0" | | | | | | | | | | | | | | | |
| 7'0" | | | | | | | | | | | | | | | |
| 8'0" | 18 | 20 | 6 | 10 | 5 | 19 | 20 | 6 | 10 | 5 | 20 | 20 | 6 | 10 | 5 |
| 9'0" | | | | | | | | | | | | | | | |
| 10'0" | | | | | | | | | | | | | | | |

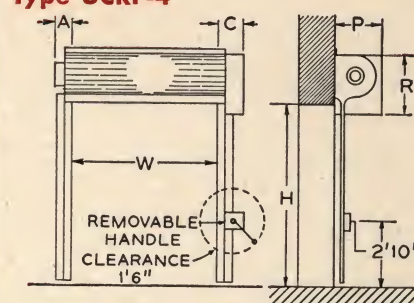
| | | | | | | | | | | | | | | | |
|-------|----|----|---|----|---|----|----|---|----|---|----|----|---|----|---|
| 11'0" | 18 | 20 | 7 | 11 | 6 | 19 | 20 | 7 | 11 | 6 | 20 | 20 | 7 | 11 | 6 |
| 12'0" | | | | | | | | | | | | | | | |

NOTE: Clearance spaces shown are in inches.

NOTE: Clearance figures above are in inches.

CRANK-GEAR OPERATED face mounted (inside or outside)

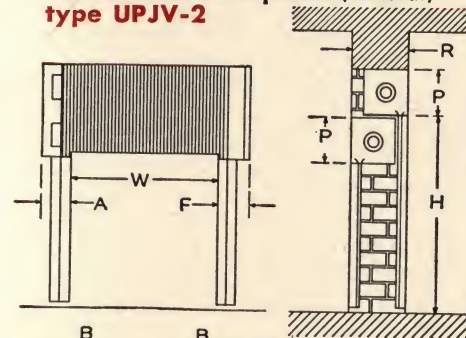
type UCRF-4



| HEIGHT up to | 6'0" | | | | | 10'0" | | | | | 12'0" | | | | |
|-----------------|------|----|---|----|---|-------|----|---|----|---|-------|----|---|----|---|
| WIDTH up to | R | P | A | C | S | R | P | A | C | S | R | P | A | C | S |
| 6'0" | | | | | | | | | | | | | | | |
| 7'0" | | | | | | | | | | | | | | | |
| 8'0" | 18 | 20 | 6 | 10 | 5 | 19 | 20 | 6 | 10 | 5 | 20 | 20 | 6 | 10 | 5 |
| 9'0" | | | | | | | | | | | | | | | |
| 10'0" | | | | | | | | | | | | | | | |
| 11'0" | 18 | 20 | 7 | 11 | 6 | 19 | 20 | 7 | 11 | 6 | 20 | 20 | 7 | 11 | 6 |
| 12'0" | | | | | | | | | | | | | | | |

NOTE: Clearance figures above are in inches.

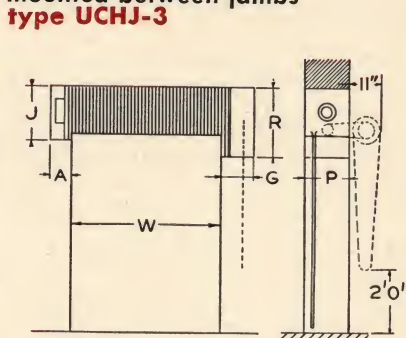
'PUSH-UP' TYPE (self-coiling) mounted between jambs (vertical) type UPJV-2



| HEIGHT up to | 8'0" | | | | 10'0" | | | | 12'0" | | | |
|-----------------|------|----|---|----|-------|---|----|----|-------|----|---|---|
| WIDTH up to | R | P | A | F | D | B | R | P | A | F | D | B |
| 6'0" | | | | | | | | | | | | |
| 7'0" | 20 | 17 | 7 | 10 | 4 | 3 | 21 | 18 | 7 | 10 | 4 | 3 |
| 8'0" | | | | | | | | | | | | |
| 9'0" | | | | | | | | | | | | |
| 10'0" | | | | | | | | | | | | |
| 11'0" | 20 | 17 | 8 | 10 | 5 | 3 | 21 | 18 | 8 | 10 | 5 | 3 |
| 12'0" | | | | | | | | | | | | |

NOTE: Clearance figures above are in inches.

CHAIN-GEAR OPERATED mounted between jambs type UCHJ-3



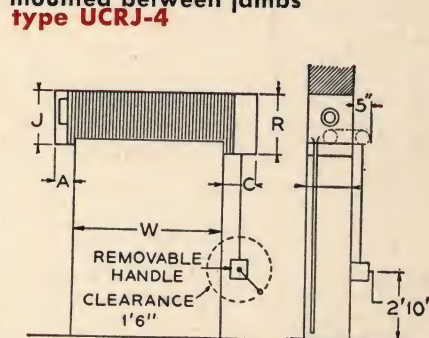
| HEIGHT up to | 8'0" | | | | | | 10'0" | | | | | | 12'0" | | | | | | | | |
|-----------------|------|---|---|---|---|---|-------|---|---|---|---|---|-------|---|---|---|---|---|---|---|---|
| WIDTH up to | J | P | R | A | G | D | B | J | P | R | A | G | D | B | J | P | R | A | G | D | B |

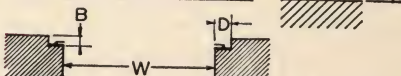
| | | | | | | | | | | | | | | | | | | | | | |
|-------|----|----|----|---|----|---|---|----|----|----|---|----|---|---|----|----|----|---|----|---|---|
| 6'0" | | | | | | | | | | | | | | | | | | | | | |
| 7'0" | | | | | | | | | | | | | | | | | | | | | |
| 8'0" | 16 | 14 | 22 | 7 | 11 | 4 | 3 | 17 | 15 | 22 | 7 | 11 | 4 | 3 | 18 | 16 | 22 | 7 | 11 | 4 | 3 |
| 9'0" | | | | | | | | | | | | | | | | | | | | | |
| 10'0" | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|-------|----|----|----|---|----|---|---|----|----|----|---|----|---|---|----|----|----|---|----|---|---|
| 11'0" | 16 | 14 | 22 | 8 | 12 | 5 | 3 | 17 | 15 | 22 | 8 | 12 | 5 | 3 | 18 | 16 | 22 | 8 | 12 | 5 | 3 |
| 12'0" | | | | | | | | | | | | | | | | | | | | | |

NOTE: Clearance figures above are in inches.

CRANK-GEAR OPERATED mounted between jambs type UCRJ-4



| | | | | | | | | | | | | | | | | | | | | | |
|---|------|----|----|---|----|---|-------|----|----|----|---|----|-------|---|----|----|----|---|----|---|---|
|  | | | | | | | | | | | | | | | | | | | | | |
| HEIGHT up to | 8'0" | | | | | | 10'0" | | | | | | 12'0" | | | | | | | | |
| WIDTH up to | J | P | R | A | C | D | J | P | R | A | C | D | J | P | R | A | C | D | B | | |
| 6'0" | | | | | | | | | | | | | | | | | | | | | |
| 7'0" | | | | | | | | | | | | | | | | | | | | | |
| 8'0" | 16 | 14 | 20 | 7 | 11 | 4 | 3 | 17 | 15 | 20 | 7 | 11 | 4 | 3 | 18 | 16 | 20 | 7 | 11 | 4 | 3 |
| 9'0" | | | | | | | | | | | | | | | | | | | | | |
| 10'0" | | | | | | | | | | | | | | | | | | | | | |
| 11'0" | 16 | 14 | 20 | 8 | 12 | 5 | 3 | 17 | 15 | 20 | 8 | 12 | 5 | 3 | 18 | 16 | 20 | 8 | 12 | 5 | 3 |
| 12'0" | | | | | | | | | | | | | | | | | | | | | |

NOTE: Clearance figures above are in inches.

ADVANTAGES

The HAZEN rolling steel fire door has been fire tested at the Underwriters' Laboratories in Chicago, Illinois, subjected to THREE hours of fire, reaching over 1800 degrees Fahrenheit, followed immediately by five minutes of water testing with high pressure hoses.

Each HAZEN rolling steel fire door is therefore inspected and labeled by the Underwriters' Laboratories, Inc. before shipment, to meet their rigid requirements for 100% fire rating and protection.

Although the HAZEN Underwriters' labeled rolling steel fire door is used mainly for the protection of life and property, the Underwriters' label it bears helps secure substantial reductions in insurance premiums, savings which can easily offset the original cost of the door within a short time.

The HAZEN Underwriters' labeled rolling steel door is used normally as a regular rolling steel service door. However, in the event of fire, the melting of the fusible links releases the automatic closing mechanism, and the door closes tightly; the downward movement is controlled by an oscillating automatic safety governor to prevent possible injury and impact.

"OVERSIZE" DOORS

HAZEN rolling steel fire doors exceeding 120 sq. ft. in area—but not over 576 sq. ft., with neither dimension exceeding 24'-0"—are also manufactured strictly to the Underwriters' Laboratories, Inc., specifications. However, they are supplied with an Underwriters' Laboratories "Certificate of Inspection for Oversize Doors" instead of a label.

METHODS OF DOOR OPERATION

HAZEN Underwriters' Labeled rolling steel fire doors are available in the following three types of operation:

- Manual "push-up" operation.
- Chain-gear operation, with galvanized endless hand chain.
- Crank-gear operation, with removable crank handle.

The Underwriters' Laboratories do not apply any labels on rolling steel fire doors that are electrically operated. However, when electric operation is required on such doors, HAZEN rolling steel fire doors can be manufactured strictly to the Underwriters' Laboratories specifications, but supplied without any labels.

TYPES OF MOUNTINGS

HAZEN Underwriters' labeled rolling steel fire doors are available in all types of mountings detailed in the sketches and clearances shown on Pages 10 and 11.

GUARANTEE

All HAZEN Underwriters' labeled rolling steel fire doors are fully guaranteed for one year after installation.

SPECIFICATIONS

CURTAIN To be formed of interlocking, cold rolled close annealed, heavily galvanized curved steel slats of not less than 20 U.S. gauge $2\frac{1}{4}$ " wide, with a depth of crown of $\frac{1}{2}$ ", for openings up to 120 sq. ft. in area. (On "OVERSIZE" doors, the gauge and sizes of slats may be increased).

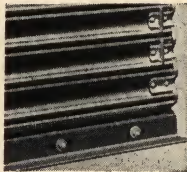
Slats to be especially designed and rolled to resist deflection and to prevent water from entering the interlocks.

On Classes "A", "B" and "C" labeled interior doors the end of EACH slat to be fitted with malleable iron endlocks. These CONTINUOUS endlocks act as flame stops, and prevent passage of smoke at the ends of the curtain. They also serve to protect both ends of every slat from rubbing against the guides and help to hold the curtain in alignment.

On Class "D" labeled exterior doors, endlocks are placed on each alternate slat.

Each curtain is supplied with two supports or stoplocks to permit the door to retain a normally closed position, even if the counterbalance mechanism is destroyed under fire.

The top slat of the curtain is attached to the barrel by means of malleable iron rings. The bottom slat is attached to a two-angled bottom rail. (See below detailed description of the barrel rings and bottom rail).



continuous endlocks,
slotted holes on
bottom rail

BOTTOM RAIL To consist of two heavily hot dip galvanized steel angles of $1\frac{1}{8}$ " x $1\frac{1}{8}$ " x $\frac{3}{16}$ " fastened back to back and extending the full width of the door to give strength to the bottom of the curtain.

The two angles to be held together by rivets having both steel and heat destructible fiber washers in slotted holes for heat expansion.

Each bottom rail is provided with hot dip galvanized steel handles to raise the curtain. These are attached to the bottom rail with cadmium plated steel bolts.

HOOD To be made of hot dip galvanized steel sheet of not less than 24 U.S. gauge curved to fit the contour of the curtain coil. It will have an automatic flame stop or baffle made of 24 U. S. gauge hot dip galvanized steel.

The hood will be attached to the brackets on each side and to the wall on top by means of $\frac{3}{16}$ " expansion bolts equipped with both steel and heat destructible washers spaced not more than 2 feet apart. It will have reinforcing beads and flanges to prevent deflection.

The hood shall be curved on face-of-wall mounted doors; and square on between-jamb mounted doors. For headroom clearances, see details on Pages 10 and 11.

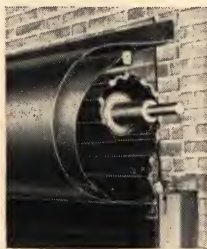
HOOD Baffle AND FUSIBLE LINKS Each hood to be equipped with a flame stop or baffle made of hot dip galvanized steel of not less than 24 U.S. gauge.

This baffle is held away from the coil under normal operation of the door by a fusible link. It shall be thermally released by the melting of this fusible link at 160 degrees Fahrenheit in the event of fire, and shall close against the curtain coil to prevent the passage of flame or smoke through the wall opening.

The hood baffle is attached to the inside of the main hood by means of a continuous beaded joint which acts as a hinge that permits it to close against the coil in the event of fire.



hood showing galvan-
ized steel hood baffle
on inside



SPRING BARREL AND RINGS Shall consist of a steel pipe which contains the helical counterbalancing springs. This barrel or pipe to be of sufficient thickness and diameter to insure a deflection not exceeding .03 inch per foot of door width.

The barrel rings shall be made of malleable iron of involute shape to coil the door curtain in a uniformly increasing diameter. Spacing between barrel rings to be as strictly prescribed by the Underwriters' Laboratories, Inc.

Each unit to be factory tested for perfect balancing and operation before shipment.

underwriters' labeled rolling steel fire doors

STEEL BRACKETS Shall be made of unbreakable steel plate of not less than $\frac{3}{8}$ " in thickness. They shall be attached to the guides by means of steel bolts and to the wall by means of $\frac{1}{2}$ " through-wall steel bolts.

The hood is to be fastened to the brackets by means of screws and bolts. The exterior side of one bracket to carry the automatic closing mechanism, while that of the other bracket carries the spring adjusting device.

Brackets are curved on face-of-wall mounted doors, and square on between-jamb doors. See photographs on page 4.

COUNTERBALANCE To consist of oil-tempered and heat treated helical torsion steel springs anchored to a tension rod. These springs are to have enough strength to counterbalance the full weight of the curtain with a safety factor in excess of 25% OVER the actual weight of the curtain.

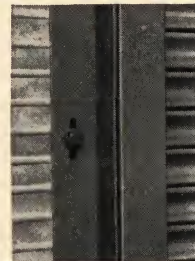
Every counterbalancing mechanism is custom-made for each particular job and is thoroughly tested with the assembled door in operation in our testing pit before shipment.

GUIDES Shall be made of not less than $\frac{3}{16}$ " cold rolled steel angles with slotted holes not less than 2" x $\frac{3}{16}$ " to allow for heat expansion.

$\frac{3}{8}$ " through-wall bolts to be spaced at not more than 18" on center. Both steel and heat destructible washers must be supplied to provide for expansion under heat.

A minimum clearance of $\frac{3}{4}$ " shall be provided between the bottom of the guides and the sill, again to allow for heat expansion.

The above provisions are to allow sufficient clearance between the guides and all other operating parts of the door to withstand an expansion under fire up to and including 1800 degrees Fahrenheit. See photograph at right.



guide showing slotted
hole for heat
expansion

SPRING ADJUSTING DEVICE To be supplied on every door, regardless of size or type of operation. It is accessible from outside the hood to easily adjust the spring tension whenever needed, after erection, without having to remove the hood.

This spring adjusting device is attached to the tension rod that carries the counterbalancing springs and on to the outside of the bracket that does not carry the automatic mechanism. It is completely separated from the automatic release and cannot therefore interfere with the automatic closing of the door in the event of fire. See photograph at right.



spring adjusting device
accessible from
outside the hood

AUTOMATIC CLOSING DEVICE This is done through an auxiliary spring, independent of the counterbalancing spring. This auxiliary spring is anchored to the tension rod inside the barrel and does not work during the normal operation of the door. In the event of fire, the melting of the fusible link at 160 degrees Fahrenheit operates the auxiliary spring which brings the door to a fully closed position.

This auxiliary spring is so designed as to permit the raising of the curtain for emergency exit and will then close it automatically. Yet, all Hazen Underwriters' labeled fire doors can be easily reset, without removing the hood, by resetting the automatic release device, attaching a new fusible link, and rolling up the door curtain fully open.

All contact points are made of special non-corrodible metals to prevent any possible freezing together.

Adjustment of the main counterbalance spring shall not be affected by the automatic closing of the door.

See photographs under "METHODS OF DOOR OPERATION" on Page 10.

SAFETY GOVERNOR Each Hazen Underwriters' labeled fire door to be provided with a safety governor which is held in place by the release lever during the normal operation of the door.

In the event of fire, the melting of the fusible link at 160 degrees Fahrenheit releases the automatic closing mechanism. The downward speed of the curtain is then slowed down and controlled by the safety governor, thus providing a warning and reducing any possible injury to any person who might be standing in the opening.

All contact points are made of special non-corrodible metals to prevent any possible freezing together.

See photographs under "METHODS OF DOOR OPERATION" on Page 10.

RELEASE LEVER This lever is held up by wire connected to fusible links during the normal operation of the door. In the event of fire, the melting of the fusible links at 160 degrees Fahrenheit drops the lever which immediately releases the automatic closing mechanism.

All contact points are made of special non-corrodible metals to prevent any possible freezing together.



steel box protecting auto-
matic closing mechanism

HAZEN METAL PRODUCTS INC.

11 WEST 42ND STREET, NEW YORK 36, NEW YORK

TELEPHONE: BRyant 9-0994 -0995 -2972

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